

# AUTO 390E: SNAP-ON DIGITAL MULTIMETER

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**Originator**

dredman

**Co-Contributor(s)****Name(s)**

Anderson, Dorothy

**Justification / Rationale**

The Automotive Faculty are creating this course to provide Automotive Program learners with the opportunity to earn industry-recognized certification. This certification will improve their ability to be hired in the automotive industry.

**Effective Term**

Spring 2023

**Credit Status**

Noncredit

**Subject**

AUTO - Automotive Technology

**Course Number**

390E

**Full Course Title**

Snap-on Digital Multimeter

**Short Title**

SNAP-ON DMM

**Discipline****Disciplines List**

Automotive Technology

**Modality**

Face-to-Face

Hybrid

**Catalog Description**

This course offers basic knowledge and skills related to industry standard digital multimeter (DMM) operation and usage. The learner will be shown navigation, interpretation, and application of a Snap-on digital multimeter. This will enhance one of the required skills for employment and advancement within the automotive service industry.

**Schedule Description**

This course offers basic knowledge and skills related to industry standard digital multimeter (DMM) operation and usage. Advisory: AUTO 301

**Non-credit Hours**

6

**In-class Hours**

6

**Out-of-class Hours**

0

**Total Course Units**

0

**Total Semester Hours**

6

**Override Description**

Noncredit override.

**Prerequisite Course(s)**

Advisory: AUTO 301

**Required Text and Other Instructional Materials****Resource Type**

Web/Other

**Open Educational Resource**

Yes

**Year**

2021

**Description**

Snap-on study material for the digital multimeter exam. (No cost to the learner)

**Class Size Maximum**

21

**Entrance Skills**

Provide brief descriptions of the components.

**Requisite Course Objectives**

AUTO 301-Provide a brief description pertaining to major components.

**Entrance Skills**

Identify major automotive components.

**Requisite Course Objectives**

AUTO 301-Identify major automotive components.

**Course Content**

1. Review of basic digital multimeter (DMM) navigation.
2. Advanced navigation of vehicle service information.
3. Locating vehicle system diagnosis in the service information.
4. Locating wiring diagrams and understanding the related symbols.
5. Taking the ShopKey Pro Level-2 exam.

**Course Objectives**

	<b>Objectives</b>
Objective 1	List the steps to properly setup a Snap-on digital multimeter to measure volts, amps, and ohms.
Objective 2	Explain how to connect the meter to an automotive electrical circuit to measure volts, amps, and ohms.
Objective 3	Locate key test points to measure volts, amps, and ohms on an automotive lighting circuit.

**Student Learning Outcomes**

	<b>Upon satisfactory completion of this course, students will be able to:</b>
Outcome 1	Demonstrate how to properly measure volts, amperes, and ohms and interpret the reading given a Snap-on digital multimeter (DMM).

**Methods of Instruction**

Method	Please provide a description or examples of how each instructional method will be used in this course.
Collaborative/Team	Learners will work in teams to locate and identify safety procedures when using a Snap-on DMM.
Lecture	Presentation of basic function and operation of a Snap-on DMM.
Laboratory	Each learner will take volt, amp, and ohm measurements of various automotive electrical circuits.
Discussion	Learners will participate in classroom discussions.

**Methods of Evaluation**

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Readings and homework from the instructor-provided course related materials.	In and Out of Class
Student participation/contribution	The lecture will be a two-way interactive discussion requiring input from each learner.	In Class Only
Tests/Quizzes/Examinations	Learners must successfully complete required assessment material based on course content.	In and Out of Class

**Assignments**
**Other In-class Assignments**

1. List 5 safety practices when using a digital multimeter (DMM).
2. What are volts, amps, and ohms?
3. How to properly setup the meter to measure.
4. How to diagnose basic circuit faults using a DMM.
5. Participation in discussion related to lecture.
6. Development of a study-plan for the Snap-on DMM exam.
7. Quiz and review of Snap-on DMM features and functions.

**Other Out-of-class Assignments**

1. Execution of individual study-plans in preparation for the Snap-on DMM exam.
2. Taking the Snap-on DMM exam.

**Grade Methods**

Pass/No Pass Only

**Distance Education Checklist**

Include the percentage of online and on-campus instruction you anticipate.

Online %

50

On-campus %

50

**Lab Courses**

**How will the lab component of your course be differentiated from the lecture component of the course?**

The lab activities will be properly setting the DMM, connecting it to various electrical circuits, and interpreting the readings.

**From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?**

Lab component of the course will be completed in a laboratory environment on campus under the supervision of an appropriate facilitator.

**How will you assess the online delivery of lab activities?**

Laboratory activities will not be delivered in the online setting, only in person.

## Instructional Materials and Resources

**If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?**

The learners are responsible for their own login and password information to other sites.

**If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.**

Each learner will go to the assigned site and follow their personalized study-plan.

## Effective Student/Faculty Contact

**Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?**

### Within Course Management System:

Discussion forums with substantive instructor participation  
Online quizzes and examinations  
Regular virtual office hours  
Timely feedback and return of student work as specified in the syllabus  
Weekly announcements

### External to Course Management System:

Direct e-mail  
Posted audio/video (including YouTube, 3cm mediasolutions, etc.)  
Synchronous audio/video

### For hybrid courses:

Orientation, study, and/or review sessions  
Scheduled Face-to-Face group or individual meetings

**Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.**

Regular effective contact will be practiced through online lecture, discussion board postings, email communications, regular announcements, prompt grading and feedback of assignments, and virtual office hours. This contact between the facilitator and learner on a regular basis will enhance learner confidence and understanding and promote critical thinking and analyzation of subject matter.

**If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.**

Group discussions, e-mail correspondence, voicemail.

## Other Information

**Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.**

With the uncertainty of the teaching environment, enabling the lecture portion of this course to be delivered in an online setting, while keeping the hands-on portion face-to-face, will ensure learners can access needed training to ensure knowledge and experience is achieved to gain employment in the automotive field.

## MIS Course Data

### CIP Code

47.0604 - Automobile/Automotive Mechanics Technology/Technician.

### TOP Code

094800 - Automotive Technology

### SAM Code

C - Clearly Occupational

### Basic Skills Status

Not Basic Skills

**Prior College Level**

Not applicable

**Cooperative Work Experience**

Not a Coop Course

**Course Classification Status**

Other Non-credit Enhanced Funding

**Approved Special Class**

Not special class

**Noncredit Category**

Short-Term Vocational

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Not transferable

**General Education Status**

Y = Not applicable

**Support Course Status**

N = Course is not a support course

**Allow Audit**

No

**Repeatability**

Yes

**Repeatability Limit**

NC

**Repeat Type**

Noncredit

**Justification**

Noncredit courses are repeatable until students achieve the outcomes and objectives of the course.

**Materials Fee**

No

**Additional Fees?**

No

**Approvals****Curriculum Committee Approval Date**

03/17/2022

**Academic Senate Approval Date**

03/24/2022

**Board of Trustees Approval Date**

04/22/2022

**Chancellor's Office Approval Date**

05/07/2022

**Course Control Number**

CCC000631454